



## Overview

### Points To Remember About Sprains and Strains

- A sprain is an injury to a ligament (tissue that connects two or more bones at a joint). When a sprain happens, one or more ligaments is stretched or torn.
- A strain is an injury to a muscle or tendon (fibrous cords of tissue that connect muscle to bone). In a strain, a muscle or tendon is stretched or torn.
- Anyone can get a sprain or strain.
- The symptoms of a sprain include: pain, swelling, bruising, and not being able to use the joint.
- In addition to pain, the symptoms of a strain include: muscle spasms, swelling, cramping, and trouble moving.
- It is important to see a doctor if you have a painful sprain or strain. This helps you get the right treatments.
- The amount of time you need to fully heal after a sprain or strain depends on the person and the type of injury.
- If you try to return to normal activities or sports too soon, you may injure the area again.

A **sprain** is a stretch and/or tear of a ligament (a band of fibrous tissue that connects two or more bones at a joint). You can injure one or more ligaments at the same time. The severity of your injury depends on the extent of injury (whether a tear is partial or complete) and the number of ligaments involved.

A **strain** is an injury to either a muscle or a tendon (fibrous cords of tissue that connect muscle to bone). Depending on the severity of your injury, a strain may be a simple overstretch of the muscle or tendon, or it can be due to a partial or complete tear.

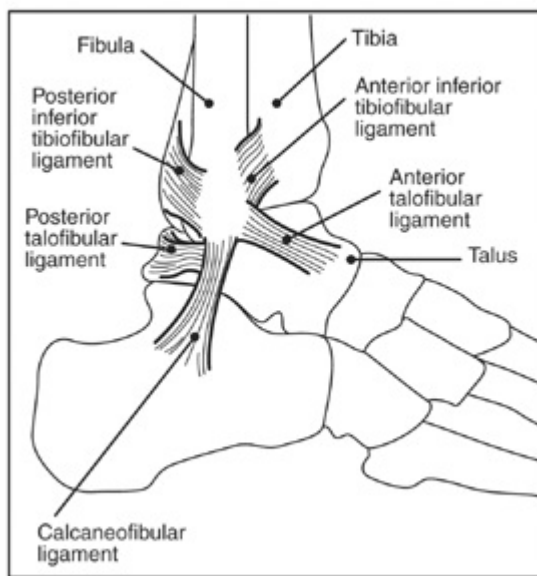
Strains can be acute or chronic. An acute strain is associated with a recent trauma or injury; it also can occur after improperly lifting heavy objects or overstressing the muscles. Chronic strains are usually the result of overuse: prolonged, repetitive movement of the muscles and tendons.

## Who Gets

### Sprains

Although sprains can occur in both the upper and lower parts of the body, the most common

**Figure 1. Lateral View of the Ankle**

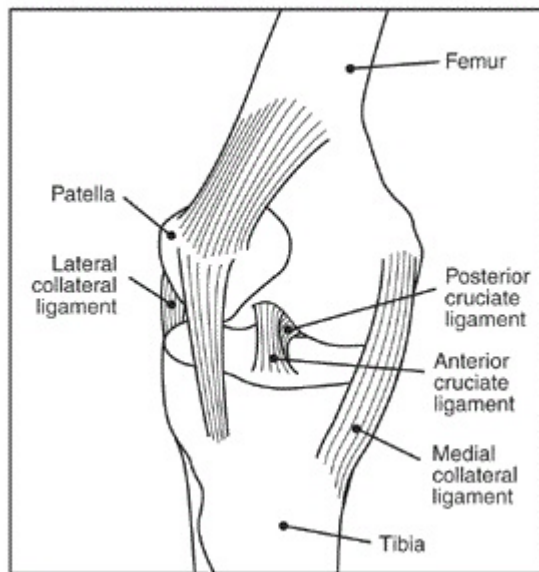


site is the ankle.

The ankle joint is supported by several lateral (outside) ligaments and medial (inside) ligaments. Most ankle sprains happen when the foot turns inward, called an inversion injury. You may be more likely to develop an ankle sprain when you

- Run.
- Turn.
- Fall
- Lands on the ankle after a jump.

Figure 2. Lateral View of the Knee



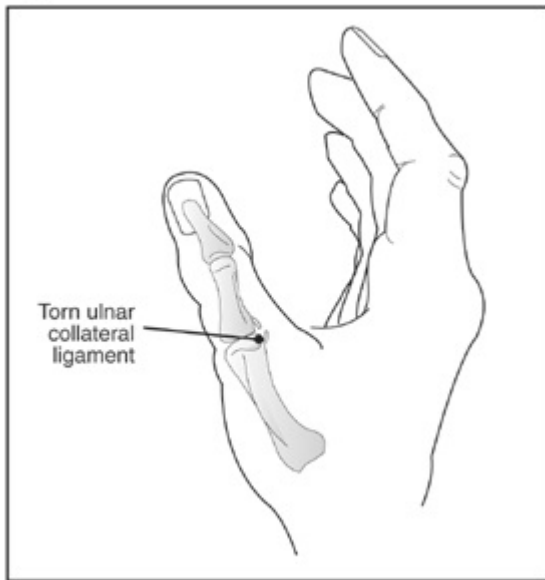
The knee is another common site for a sprain. You may be more likely to sprain your knee if you:

- Receive a blow to the knee.
- Fall.
- Suddenly twist the joint.

Another common location for a sprain is the wrist. This injury often occurs when a ligament near the base of the thumb (the ulnar collateral ligament of the metacarpophalangeal joint) is torn. You may be more likely to sprain your wrist if you:

- Fall and land on an outstretched hand.
- Participate in skiing or other sports.

**Figure 3. Lateral View of the Thumb**



## **Strains**

Two common sites for a strain are the back and the hamstring muscle (located in the back of the thigh). You may be more likely to develop a strain if you participate in contact sports such as:

- Soccer.
- Football.
- Hockey.
- Boxing.
- Wrestling.

You may be more likely to develop a strain in the hand or forearm if you participate in

- Gymnastics.
- Tennis.
- Rowing.
- Golf.
- Other sports that require extensive gripping.

You may be more likely to develop a strain in the elbow strains if you participate in:

- Racquet sports.
- Throwing.
- Contact sports.

## **Types**

Strains can be **acute** or **chronic**. An acute strain is associated with a recent trauma or injury; it also can occur after improperly lifting heavy objects or overstressing the muscles. Chronic strains are usually the result of overuse: prolonged, repetitive movement of the muscles and tendons.

Doctors categorize or grade sprains.

## Grade I Sprain

A grade I or mild sprain happens when you overstretch or slightly tear ligaments. If you have a mild sprain, usually you have:

- Minimal pain and swelling.
- Little or no loss of functional ability.
- Slight or no bruising.
- Little trouble putting weight on the affected joint.

## Grade II Sprain

A grade II or moderate sprain happens when you tear a ligament further. When you have this type of sprain you have

- Bruising.
- Moderate pain.
- Swelling.
- Difficulty putting weight on the joint.
- Some loss of function.

## Grade III Sprain

A grade III sprain is usually severe and happens when you completely tear or rupture a ligament. If you have a grade III sprain you are unable to put your weight on the joint and have severe

- Pain.
- Swelling.
- Bruising.

# Symptoms

## Sprains

The symptoms of a sprain include:

- Pain.

- Swelling.
- Bruising.
- Instability.
- Loss of the ability to move and use the joint (called functional ability).

The symptoms can vary and depend on the severity of the sprain. Sometimes you can feel a pop or tear when the injury happens.

## **Strains**

In addition to pain, the symptoms of a strain can include:

- Limited motion.
- Muscle spasms.
- Possibly muscle weakness.
- Localized swelling.
- Cramping.
- Inflammation.
- Some loss of muscle function.

After a strain you typically have pain in the injured area and general weakness of the muscle when you try to move it. Severe strains that partially or completely tear the muscle or tendon are often very painful and disabling.

## **Causes**

### **Sprains**

The causes of a sprain include a:

- Fall on an outstretched arm.
- Sudden twist of the joint when you land on the side of your foot.
- Blow to the body, for example sliding into a baseball base or hit in football.

When you force your joint out of its normal position you can stretch or tear the ligament supporting that joint.

### **Strains**

A strain is caused by twisting or pulling a muscle or tendon. Strains can be acute or chronic. An acute strain is associated with a recent trauma or injury; it also can occur after improperly lifting heavy objects or overstressing the muscles. Chronic strains are usually the result of overuse: prolonged, repetitive movement of the muscles and tendons.

# Diagnosis

Doctors diagnose sprains and strains by:

- Asking questions about the injury.
- Examining the area of the injury.
- Ordering an x-ray to make sure you don't have a fracture or broken bone.

Your doctor may order a magnetic resonance imaging or MRI help tell the differences between a partial injury and a complete tear in the ligament.

# Treatment

Doctors use similar treatments for sprains and strains, usually in 2 stages.

## Stage 1

The goal during the first stage of treatment is to reduce your swelling and pain by using the R-I-C-E formula, *rest*, *ice*, *compression*, and *elevation*:

- Rest by reducing your regular exercise or activities of daily living. Your health care provider may advise you to put no weight on an injured area for 48 hours. If you cannot put weight on an ankle or knee, crutches may help. If you use a cane or one crutch for an ankle injury, use it on the uninjured side to help you lean away and relieve weight on the injured ankle.
- Ice the injured area. Apply an ice pack to the injured area for 20 minutes at a time, four to eight times a day. You can use a cold pack, ice bag, or plastic bag filled with crushed ice and wrapped in a towel. To avoid cold injury and frostbite, do not apply the ice for more than 20 minutes.
- Compression of your injured ankle, knee, or wrist may help reduce swelling. Examples of compression bandages are elastic wraps, special boots, air casts, and splints. Ask your health care provider for advice on which one to use and how tight to apply the bandage safely.
- Elevate the injured area. If possible, you should try to keep the injured ankle, knee, elbow, or wrist elevated on a pillow. Elevating the injured area above your heart can help decrease swelling.

Your doctor may recommend using RICE therapy for the first 24 to 48 hours after the injury. In addition to RICE, your doctor also may recommend:

- An over-the-counter or prescription medication to help decrease pain and inflammation.
- A hard cast for the injured limb, usually if you have a moderate or severe sprain of the ankle.
- Surgery to repair torn ligaments, muscle, or tendon usually seen if you have a severe sprain or strain. An orthopedic surgeon usually performs the surgery.

## **Stage 2**

Stage 2 of your treatment is rehabilitation. The goal during the second stage of treatment is to improve the overall condition of the injured area and restore its function. Your doctor may prescribe an exercise program to:

- Prevent stiffness.
- Improve range of motion.
- Restore the joint's normal flexibility and strength.

Once the acute pain and swelling are better, your doctor may give you exercises to do several times a day. The type of exercises you do, and how long you need to do them will depend on the type and severity of your injury. If your sprain or strain is more severe, your doctor may recommend physical therapy.

Once you begin to see some improvement of your injury, your doctor may recommend more demanding exercises to help increase your strength and regain flexibility.

Your final goal is to return to full daily activities, including sports when appropriate. You should work closely with your doctor or physical therapist to determine your readiness to return to full activity. You may be tempted to resume full activity or play sports despite pain or muscle soreness. Returning to full activity before regaining normal range of motion, flexibility, and strength increases your chance of reinjury and may lead to a chronic problem.

The amount of rehabilitation you may need and the time needed for your recovery after a sprain or strain depends on the severity of your injury and how quickly you heal. For example,

- A mild ankle sprain may require 3 to 6 weeks.
- Moderate sprain could require 2 to 3 months.
- Severe sprain can take 8 to 12 months to return to full activities.

## **Living With**

The goal is to get you back to your normal everyday activities, including sports if possible. You should work closely with your doctor or physical therapist to make sure you are ready. It is important that you have the following before returning to normal activity or sports:

- Normal motion.
- Flexibility.
- Strength.

The amount of time you need to fully heal after a sprain or strain depends on the person and the type of injury.

## Prevention

You can help prevent sprains and strains by:

- Avoid exercising or playing sports when tired or in pain.
- Follow a well-balanced diet to keep muscles strong.
- Practice safety measures to help prevent falls. For example, keep stairways, walkways, yards, and driveways free of clutter; anchor scatter rugs; and salt or sand icy sidewalks and driveways in the winter.
- Wear shoes that fit properly.
- Replace athletic shoes as soon as the tread wears out or the heel wears down on one side.
- Do stretching exercises daily.
- Be in proper physical condition to play a sport.
- Warm up and stretch before participating in any sport or exercise.
- Wear protective equipment when playing.
- Run on even surfaces.

## Related Resources

### **U.S. Food and Drug Administration**

Toll free: 888-INFO-FDA (888-463-6332)

Website: <https://www.fda.gov>

Drugs@ FDA at <https://www.accessdata.fda.gov/scripts/cder/daf>. [Drugs@FDA](#) is a searchable catalog of FDA-approved drug products.

### **Centers for Disease Control and Prevention, National Center for Health Statistics**

Website: <https://www.cdc.gov/nchs>

### **American Academy of Orthopaedic Surgeons**

Website: <https://www.aaos.org>

### **American Physical Therapy Association**

Website: <https://www.apta.org>

### **American College of Sports Medicine**

Website: <https://www.acsm.org>

**American Medical Society for Sports Medicine**

Website: <https://www.amssm.org>

**American Orthopaedic Society for Sports Medicine**

Website: <https://www.sportsmed.org>

**National Athletic Trainers Association**

Website: <https://www.nata.org>

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